

CLAIMS

1 1. A solution for preserving a copper surface of an  
2 electronic module, the solution containing at least one  
3 compound selected from the family of the azoles,  
4 characterized in that it further comprises a zinc salt.

1 2. The solution of claim 1 wherein the at least one  
2 compound selected from the family of the azoles is  
3 BenzoTriAzole (BTA).

1 3. The solution of claim 2 wherein the zinc salt is zinc  
2 acetate  $\text{Zn}(\text{CH}_3\text{COO})_2 \cdot 2\text{H}_2\text{O}$ .

1 4. The solution of claim 3 further containing an organic  
2 acid and a compound selected from the family of the amines  
3 as complexing agents.

1 5. The solution of claim 4 wherein the organic acid is  
2 acetic acid  $\text{CH}_3\text{COOH}$ .

1 6. The solution of claim 4 wherein the compound selected  
2 from the family of the amines is TriEthanolAmine (TEA).

1 7. The solution of claim 3 having a pH between 5 and 8.

1 8. The solution of claim 7 wherein the pH is controlled  
2 by the addition of ammonia.

1 9. The solution of claim 4 wherein the amount of the at  
2 least one compound selected from the family of the azoles  
3 is in the range 0.001-0.5 mol, the amount of zinc acetate

4 is in the range 0.1-1 mol, the molecular ratio amine/zinc  
5 salt is less than 3 and the molecular ratio organic  
6 acid/zinc salt is less than 4.

1 10. A method for protecting a copper surface comprising  
2 the step of immersing the copper surface in the solution of  
3 claim 1.

1 11. A method for soldering a metallic component on a  
2 copper surface with a tin base alloy, the method comprising  
3 the step of pretreating the copper surface with the  
4 solution of claim 1.

1 12. An electronic device having electronic components  
2 soldered with the soldering method of claim 11.

1 13. A method for manufacturing a printed circuit board  
2 wherein the electronic components are soldered on the  
3 copper (Cu) substrate using a tin (Sn) solder alloy, the  
4 method comprising the soldering method of claim 11.

1 14. The method of claim 13 wherein the Sn alloy is lead  
2 (Pb) free.

1 15. The method of claim 14 wherein the lead free alloy is  
2 a tin-bismuth (Sn-Bi) alloy.

1 16. A printed circuit board manufactured using the method  
2 of claim 13.